National Aeronautics and Space Administration

NASA's Impact in California: A Tech Transfer Perspective

You know that NASA studies our planet, our sun, the solar system, and the Universe. But did you know about the space program's economic impact here on Earth?

In 2011, NASA invested nearly **$3.5 billion** in the state of California.

Since 2001, NASA's SBIR/STTR Program has invested over **$238 million** in **247 California companies** and more than **$1.2 billion** nationwide.

How NASA's SBIR/STTR Program Benefits California

NASA is committed to moving technologies and innovations into the mainstream of the U.S. economy, and the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) program helps fulfill this goal.

SBIR/STTR stimulates technological innovation by encouraging small, high-tech companies—particularly minority and disadvantaged businesses—to partner with NASA to help meet its research and development needs in key technology areas. At the same time, this program strengthens small companies by enabling them to bring cutting-edge new products into the U.S. economy.

The list to the right highlights California businesses that received SBIR/STTR contracts from NASA since 2008. **(Visit http://sbir.nasa.gov for more information on the SBIR/STTR program.)**

NASA SBIR/STTR Companies in California

ACTA, Inc.	Torrance
Advanced Diagnostic Technologies	Santa Barbara
Aerius Photonics, LLC	Ventura
Applied Poleramic, Inc.	Benicia
Applied Spectra, Inc.	Fremont
Astral Infiniti, LLC	Hacienda Heights
Astro Terra Corporation	Orange
Aycn, LLC	Los Altos
B&A Engineering Systems, Inc.	San Dimas
Cadtrak Engineering, LLC	San Anselmo
Cascade Technologies, Inc.	Palo Alto
CFX Battery, Inc.	Azusa
ChromoLogic, LLC	Pasadena
CrossTrac Engineering, Inc.	Mountain View
Daylight Solutions	San Diego
Deployable Space Systems, Inc.	Goleta
DLA Instruments Corporation	San Jose
DxRay, Inc.	Northridge
EcoPro Technologies, LLC	Berkeley
ELORET Corporation	Sunnyvale
Empirical Systems Aerospace	Pismo Beach
Exquadrum, Inc.	Adelanto
Farasis Energy, Inc.	Hayward
Flometrics, Inc.	Carlsbad
Freeform Wave Technologies, LLC	Los Angeles
FUTEK Advanced Sensor Technology, Inc.	Irvine
Group4 Labs, Inc.	Menlo Park
Innovative Engineering Solutions	Murrieta
KWJ Engineering, Inc.	Newark
LaunchPoint Technologies, Inc.	Goleta
LC Tech Solutions	Palo Alto
MARK Resources, Inc.	Torrance
Masten Space Systems	Mojave
Mitek Analytics, LLC	Palo Alto
Monterey Technologies, Inc.	Monterey
Neerim Corporation	Mountain View
Optical Physics Company	Calabasas
Pacific Design Technologies, Inc.	Goleta
Pacific Microchip Corporation	Culver City
Photon Systems	Covina
Redfern Integrated Optics, Inc.	Santa Clara
Rocketstar Robotics, Inc.	Camarillo
Seacoast Science, Inc.	Carlsbad
Space Environment Technologies, LLC	Pacific Palisades
St. Croix Research	San Jose
Tahoe RF Semiconductor, Inc.	Auburn
Techno Planet, Inc.	Northridge
Ultra Communications, Inc.	Vista
Ultracor, Inc.	Livermore
Vanguard Composites Group, Inc.	San Diego
Ventions, LLC	San Francisco
VIDA Products, Inc.	Santa Rosa
VIP Sensors	San Juan Capistrano
VIPMobile, Inc.	San Francisco
XCOR Aerospace	Mojave

california

CALIFORNIA REPUBLIC

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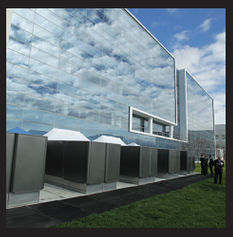
How NASA Spinoffs Benefit California

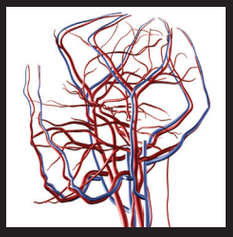
Energy-Efficient System Eliminates Icing Danger for UAVs *(Temecula)*
Unmanned aerial vehicles (UAVs) are valuable tools for military reconnaissance and combat, cargo transport, search and rescue, scientific research, and wildfire monitoring, but they are also particularly susceptible to icing problems. IMS-ESS licensed and built upon a NASA concept to produce a deicing system that uses a pulsing electrical current to shatter ice buildup. The lightweight, low power systems now prevent damaging ice accumulation on UAVs, allowing them to operate in cold environments.

Cell Phone Cameras Use Spacecraft Technology *(San Jose)*
Technology developed to significantly miniaturize cameras on interplanetary spacecraft yet maintain scientific image quality is now prevalent in our everyday lives. Aptina Imaging Corporation has shipped more than 1 billion of its complementary metal-oxide semiconductor sensors for use in digital cameras, camera phones, and Web cameras. Today, one of every three cell phone cameras features Aptina's sensor technology.



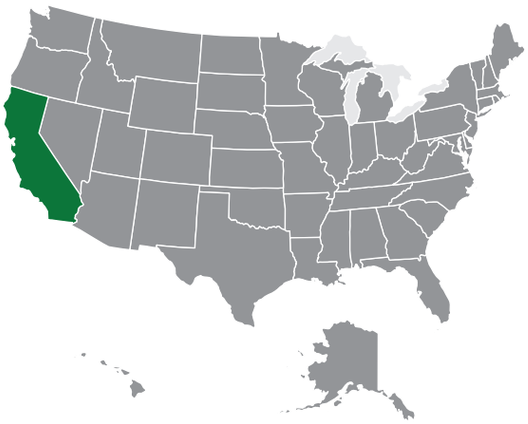
Green Technology Delivers Clean, Affordable Power *(Sunnyvale)*
An innovation developed to produce oxygen and fuel on Mars is now generating clean energy on Earth. Bloom Energy's solid oxide fuel cell technology is 67 percent cleaner than typical coal power when using fossil fuels and 100 percent cleaner with renewable fuels. A full-size unit with a footprint of a parking space can produce 100 kilowatts per day, enough to power a 30,000-square-foot office building.

Toolset Secures Online Shopping, Banking *(Sunnyvale)*
NASA developed a software testing tool to ensure the safe, effective execution of mission-critical systems, such as flight control software, air traffic management, and scripts for commanding robots. Fujitsu Laboratories of America, Inc. has enhanced and adapted the toolset to enable exhaustive, automatic testing that verifies whether a Web application can process specified task transactions without the need to prepare detailed test procedures or data manually. The toolset ensures operation and security of online banking applications and shopping carts.



NASA Spinoff Monitors and Analyzes Cranial Pressure *(Mountain View)*
NASA-developed signal processing algorithms are being used to help researchers understand blood flow and pressure in ways that may improve treatment for victims of brain injury and stroke. The award-winning technology's first application within NASA was for structural monitoring of space shuttle orbiters. DynaDx Corporation licensed the technology for medical diagnosis and prediction of brain blood flow-related problems.

Technology Travels from Space Helmets to Sunglasses *(Calabasas)*
Technology developed to shield astronauts from eye-damaging ultraviolet light in space is protecting and enhancing vision on Earth. Originally spun off to create welding shields, Eagle Eyes Optics uses the lens technology to produce sunglasses that block most ultraviolet light as well as damaging high-energy blue light. Blocking out bad light also provides a bonus service—it enhances visual clarity. The eyewear, which has been inducted into the Space Technology Hall of Fame, protects against damage that can lead to cataracts, which affect millions of U.S. citizens.



NASA actively seeks partnerships with U.S. companies that can license NASA innovations and create "spinoffs" in areas such as health and medicine, consumer goods, transportation, renewable energy, and manufacturing. When businesses leverage NASA technologies to develop new products, it not only benefits the regional economy, but significantly strengthens the nation's competitiveness in the global marketplace.

NASA's centers across the country—including Ames Research Center, Dryden Flight Research Center, and the Jet Propulsion Laboratory in California—have helped 730 California companies develop revolutionary spinoff technologies.

Learn more about how NASA innovations benefit the public in *Spinoff,* an annual publication that highlights NASA's most significant technology transfer successes. (Available at: http://www.sti.nasa.gov/tto)

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